New York Field Office

Seabeach Amaranth

Walk along the ever-changing beach between ocean and land. Smell the salt of the sea and hear the constant motion of the waves. Examine the shifting sand at the base of the dunes just above the high tide line. You may see a low clump of sprawling, fleshy, reddish branches with spinach-green leaves – the seabeach amaranth (*Amaranthus pumilus*).

Once found along beaches of the Atlantic Coast in nine states from Massachusetts to South Carolina, seabeach amaranth is gone from two-thirds of its historic range. For this reason, it is protected as a threatened species under the Endangered Species Act. The Act protects endangered and threatened plants on federal land and ensures activities authorized, funded, or conducted by the federal government are not likely to jeopardize the continued existence of those species.

Description

Seabeach amaranth is an annual plant. The plants germinate as small sprigs between June and July in New York State, branching later into fleshy reddish stems spreading low to the ground. They mature between August and September and can become about three feet (one meter) in diameter. Seed production begins in August and peaks in September. The plant continues growing, blooming, and producing seed until it dies, sometimes as late as November in the North and later in the South.

Biologists believed seabeach amaranth no longer occurred in New York, then, in 1990, 13 populations totaling 357 plants were rediscovered on Long Island, New York, beaches. Several hurricanes, including Hugo, preceded the plants' reappearance. These storms may have uncovered preserved seedbanks deep in the sand or they may have resulted in long-distance seed dispersal from the surviving populations in the Carolinas.

Habitat

Seabeach amaranth is a plant of the dynamic barrier beach landscape, often colonizing areas just above the high tide line on accreting shorelines—those where the beach is building up or expanding. Established plants trap sand and one large plant can create a sand mound of two to three cubic yards (1.5-2.3 cubic meters). It shares this habitat with other threatened and endangered species, such as piping plovers and roseate terns. Seabeach amaranth has also been found growing within Long Island's bays, suggesting it is a fugitive species, a species of some mobility and adaptability, one that will occupy suitable habitat, if available.

Why is the species threatened?

The seabeach amaranth is threatened because of the continued loss of barrier beach habitat. Beach stabilization by bulkheads, seawalls, or riprap, artificial dune construction, fencing, or vegetation planting favors the establishment of other plants at the expense of this increasingly rare species. Also, off-road vehicles can crush the plant's brittle stems and can destroy the seed.

Natural factors can also play a role. Webworms, for example, can prey heavily on the plant, reducing its production of flowers and seeds. As an annual plant in New York, seabeach amaranth depends upon seed production and dispersal as well as favorable germination conditions to reestablish populations. The plant's habitat is fragmented and existing populations are dispersed widely, lessening the likelihood that populations will establish naturally on new or recovered habitat.

Scientists estimate there are 55 known populations of seabeach amaranth in New York, North Carolina, and South Carolina. Of those populations, 27 occur on federal land where they receive protection under the Endangered Species Act. The remaining 28 populations occur on private land where the Endangered Species Act has limited authority to ensure their future.

Why should we be concerned?

More than 500 species, subspecies, or varieties of our nation's plants and animals have become extinct since 1620, the year the Pilgrims landed at Plymouth Rock. In contrast, it is estimated that in North America only three species were lost every 100 years during the Pleistocene ice

age. As of 1995, there are approximately 956 threatened or endangered species protected by the Endangered Species Act in the United States. Because each and every species has a valuable ecological role in the balance of nature, the accelerated loss of species destabilizes this natural balance and reduces biological diversity.

Many plant species have properties beneficial to humans. Approximately 25 percent of all prescriptions written annually in the United States contain chemicals obtained originally from wild plants. For instance, a chemical compound derived from the Pacific Yew tree shrinks cancerous tumors. Chemical compounds derived from the Madagascar periwinkle have increased the survival rate of children with leukemia from 20 percent to 80 percent. The World Health Organization has estimated that 80 percent of the world's health problems are treated by plant-based medicines. Unfortunately, only a fraction of the world's known plant species have been investigated for pharmaceutical properties. We lose a potential resource for improving the quality of life for all humanity with the extinction of each plant species.

The group of plants to which the seabeach amaranth belongs have many representatives native to the Americas. Many are high in nutritional value and are grown throughout the world as important grain and vegetable crops. Amaranth grain was the staple of the Aztec diet and a focal point of Aztec culture. Researchers are investigating seabeach amaranth for its ability to survive in a hot, dry environment and for potential as a gene donor in crop improvement. It is a promising grain for food production on salt-contaminated soils in developing countries. The loss of a single *Amaranthus* species removes valuable traits and the potential for those traits to be used to improve our social or economic conditions.

What can you do to help?

Keeping coastal beaches in their natural condition benefits seabeach amaranth and other threatened or endangered species sharing this habitat, including piping plovers and roseate terns. Also, it protects beaches for a wide variety of human recreation. Beach armoring with riprap or seawalls not only threatens these rare species, but often eliminates the beach by accelerating erosion.

Beach landowners and beach users should learn to recognize and appreciate seabeach amaranth as an attractive, interesting, and valuable part of the beach community. Beach users should minimize off-road vehicle use on beaches, particularly in the areas where the plant may occur. This will help protect the beach from erosion. It will protect these and other plants that maintain wide beaches and dunes naturally.

When beach stabilization is necessary, use beach nourishment in the winter as a substitute for structural shoreline stabilization. Avoid walking on or damaging seabeach amaranth. Enjoy the plants gently and realize you have had a rare look at a threatened species in the coastal beach ecosystem.

Persons interested in volunteering to assist Service staff conduct an annual census may contact the office listed below:

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